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large country without any ice at all, — no glaciers nor icebergs: the sea will take a given level around such a country. But suppose that for some reason or another this country gets covered with snow and ice, as is the case in polar regions: the sea-level will rise, because the continent will be denser, and will attract the sea with more force. But if half of the ice melt, the sea-level will be lower: if it melt entirely, the waters will re-assume their first level. We should then find on the seacoast three levels, — the actual one; one very high up, say a hundred yards; and another one halfway down. This explanation may perhaps be accepted for some countries, but it seems doubtful that it applies to all cases; and the theory of slow emersion and immersion of continents and islands — some of them, at least — cannot yet be overthrown. The conference of M. de Lapparent will be published in the Bulletin of the geological society, and a review of it is to come out shortly in *Nature*.

The principal event of the last month has been Pasteur's paper, read at the Academy of sciences the 1st of March, concerning the cure of rabies. The meeting was a very fine one. Some persons had heard it rumored that Pasteur was to speak, and to communicate very interesting facts, so the room was quite full. M. Gosselin, who had been sick for some time, came; and nearly everybody was there, except M. Chevreul, who was yet obliged to stay at home on account of the bad weather and a slight illness. M. Pasteur's note was a very long one, but it was listened to with great attention; and at the conclusion enthusiastic applause went up from every hand. M. Vulpian rose immediately after, and proposed that a vaccinal dispensary be erected for the purpose of admitting all persons bitten by rabid dogs, and having them cured by M. Pasteur and his assistants. The fact is, that it is necessary to be able to receive all persons, French or strangers, who desire Pasteur's assistance, and to have some sort of hospital. M. Vulpian's proposal was greeted with many cheers, and M. Pasteur quite approved it. The results of Pasteur's 350 first experiments on the cure of rabies in mankind are certainly very encouraging, and the subscribers are sending a good deal of money. Pasteur is sure to have all the money that is necessary, and will certainly use it well. He wishes to investigate now the question of diphtheria, and to try and find out the way of preventing or fighting it. It is to be hoped also that tuberculosis may catch his attention. Tuberculosis is far deadlier than cholera, diphtheria, and rabies put together.

Appropos of cholera, M. Rochefontaine, who was director of Professor Vulpian's laboratory, died a

few days ago. It will be remembered that Dr. Rochefontaine tried last year an experiment on the etiology of cholera, swallowing a pill in which choleraic dejections and bacilli formed the prominent feature. He recovered, and some months ago he began again, in another manner, inoculating bacilli under the skin. It is, however, believed here that these experiments were very detrimental to his health, and that his sudden death, in the course of a very mild illness, may have been the consequence of them. Professor Vulpian made a very heartfelt and appropriate speech at the burial. Rochefontaine has been during seventeen years the *préparateur* and the assistant of M. Vulpian: he was, in fact, his only pupil, as concerns experimental physiology, and his death is a very serious blow to Vulpian, who will certainly not find so experienced an assistant to help him.

M. A. Gautier, the professor of organic chemistry in the faculté de médecine, pupil and successor of Würtz, has recently published a very interesting paper, read before the Academy of medicine, concerning ptomaines and leucomaines. Leucomaines are alkaloids very similar to ptomaines, but they are formed in the living body and during life, instead of developing after death. They are very poisonous. In the next letter, I shall perhaps be able to give more information on this point.

The Concours d'agrégation at the Medical school was finished yesterday evening at half-past six, after some two months' duration. The candidates who have been admitted are MM. Brissand and Ballet, two of Charcot's pupils, neither of the best nor of the worst; M. Déjérine, Vulpian's pupil, very well known by quite a number of papers and contributions on nervous pathology and physiology — he certainly is the best man of the four in the estimation of all, and is a very good recruit for the faculty; M. Chauffard, son of the well-known spiritualist professor, who died some years ago — he has no works to speak for him, being yet very young, but his *concours* was a very brilliant one. V.

Paris, March 17.

NOTES AND NEWS.

On the 25th of March, 1826, Alvan Clark, the senior member of the famous firm of telescope-makers, was united in marriage to Miss Maria Pease, and the venerable couple are still living, the former at the age of eighty-two, and the latter seventy-eight. A reception was given in honor of the sixtieth anniversary of their marriage. During the past year Mr. Clark has painted three

large portraits in oil, — of his two sons, Alvan and George, and of a grandson. Portrait-painting was Mr. Clark's profession till he was forty years of age, when, by trying to assist one of his sons, then a student, in the grinding of a reflector for a telescope he was making for his own use, his attention was first directed to the grinding of optical surfaces as a business.

— Captain Eden of the British schooner *Storm king*, bound from Utila to New Orleans, reports on Thursday, March 11, passing over a submarine mineral-oil spring, bubbling and rippling all around the vessel, and extending out over one hundred and fifty to two hundred yards. This was in latitude $25^{\circ} 48'$ north, longitude $86^{\circ} 20'$ west, about two hundred and fifty miles southeast of the passes. At 11 A.M. they were over the spring proper, and at 11.30 A.M. outside the circumference of the oil-circle. It is supposed that this spring is the oil-cargo of a foundered vessel, which, breaking through the casks, caused this peculiar marine freak, or that it may be a natural phenomenon.

— The *Railroad gazette* cites one of the longest times in which fire has been kept in a furnace without the addition of fuel. A furnace belonging to the Kemble iron and coal company at Riddlesburg, Penn., was banked up and hermetically sealed in November, 1884, fire being left in. On March 5, 1886, the furnace was opened, after being closed for nearly sixteen months. The fire was found to be still burning, the coke glowing brightly, and, on the admission of air, soon became hot enough to melt cinder. It was started as easily as if it had been standing but a week.

— A railroad company in southern Kansas has established a large artificial plantation of forest-trees to supply their future needs. Over a square mile of land near Farlington has been planted with young saplings of the catalpa and ailantus. The prospective success of their experiment has brought about the similar planting of another equal area. These trees are of rapid growth, and are valuable for ties and fencing-material.

— The first international congress of hydrology and climatology will convene the 1st of October next at Biarritz, and will last eight days. Communications and inquiries may be addressed to the Viscount de Chasteigner, at Biarritz.

— The March number of the Johns Hopkins university circulars contains abstracts of several scientific papers of value, read before the scientific and philological association of the university, as follows: 'Instantaneous photographs of the heart and intestines in motion,' by Dr. Thompson; 'On

the antiseptic action of acids,' by Mr. Duggan; and on 'Speech mixture in French Canada,' by Mr. Elliott.

— The next volume of the 'Encyclopaedia Britannica' will be issued about the middle of this month. Among the principal articles will be 'Psychology,' by Mr. J. Ward; 'Railways,' by Messrs. D. K. Clark, A. T. Hadley, A. M. Wellington, and S. W. Dunning; 'Animal reproduction,' by Mr. P. Geddes; 'Vegetable reproduction,' by S. H. Vines; 'Reptiles,' by Dr. A. Günther and St. G. Mivart; 'Respiration,' by Prof. A. Gamgee; 'River-engineering,' by L. F. Vernon-Harcourt; and 'Roman topography and archeology,' by J. H. Middleton.

— The *k. k. naturhistorischen hofmuseum* at Vienna has begun the publication of *annalen*, under the editorship of Dr. Franz v. Hauer, the superintendent. The first number, lately issued, contains a report for the year 1885, which will be of interest to those concerned in the management of museums. The *personnel* of this important museum includes many names, such as Pelzeln, Rogenhofer, Fuchs, Brezina, Brauer, Marenzeller, Heger, Szombathy, and others, more or less widely known as eminent scientific men. Altogether the staff of curators, assistants, and servants, numbers forty-four. The next number will appear in May, and will contain zoölogical, botanical, and mineralogical papers by Steindachner, Kohl, Beck, Brezina, and others.

— A new enterprise of considerable importance is announced in Germany. It is the issuance of a *Handbuch der klassischen alterthumswissenschaft in systematischer darstellung*, which will deal with the entire field of classical philology and archeology, with especial reference to the history, method, and bibliography of the respective departments. The work will be complete in seven volumes, — of which three parts, comprising a volume and a half, have already appeared, — and is edited by Professor Müller of Erlangen, assisted by Professors Blass of Kiel, Brugmann of Freiburg, Busset of Kiel, von Christ of Munich, Hübner of Berlin, Jordan of Königsberg, Lolling of Athens, Niese of Breslau, Nissen of Bonn, Reifferschied of Breslau, Schiller of Giessen, Schanz of Würzburg, von Ulrichs of Würzburg, and Windelband of Strasburg. This array of distinguished names ought to insure a work of great interest and value.

— We have received a translation into the German, of Auchincloss's well-known work on valve-gearing of steam-engines. The original was published by Van Nostrand in 1869, and a second edition in 1883. It has been a standard

treatise on the subject in this country, and, with Zeuner and Blaha in Europe, has given the engineer exceedingly valuable methods of treatment of all problems arising in the designing and adjustment of the slide-valve. The work, both of author and publisher, is well done; and our German friends are to be congratulated upon having so good a reproduction of what has long been considered in the United States, in many respects, an exceptionally valuable treatise.

— Mr. S. S. Bassler, of the *Cincinnati commercial gazette*, has lately published a timely little pocket-pamphlet entitled 'The weather chart,' in which he illustrates the types of areas of high and low pressure that cross our country, and control its weather, by small sketch-maps for recent dates, still in the minds of his readers. The object of the essay is a good one, and the examples are well chosen; but we regret that more care is not taken to secure accuracy in its explanatory statements. It is very questionable whether correct ideas can be gathered from such phrases as, "Could we go beyond the limits of the atmosphere, and look down upon its surface, we should see a constant succession of hills, valleys, plains, and areas of tempestuous cross-waves." It is true that in the lower atmosphere the imaginary isobaric surfaces would be thus deformed, in accordance with changes in temperature and density of air; but there is every probability that these irregularities are all smoothed out long before the limits of the atmosphere are reached. And it is to be regretted that one who has done so much good work in popularizing his favorite study should degrade its terminology by the frequent use of such words as 'high' and 'low,' instead of the better ones 'anti-cyclonic' and 'cyclonic systems,' which appear but a few times.

— Robert Oppenheim of Berlin announces a 'Führer für forschungsreisende' by Dr. F. v. Richthofen. This book is intended as a guide for travellers in making observations of interest in physical geography or geology. It is intended especially for those who, without special knowledge in those sciences, yet have some acquaintance with their rudiments.

— The following works of interest to scientific readers have been announced: 'Creation or evolution,' by George Ticknor Curtis (*Appleton*); 'Fresh-water fishes of Europe, a history of the genera, species, structure, habits, etc.,' by H. G. Seeley (*Cassell*); 'Electric lighting,' translated from the German (*Cupples, Upham & Co.*); 'Can matter think?' by Elliott Coues (*Estes & Lauriat*); 'Geological studies,' by Alex. Winchell (*Griggs & Co.*); 'Builders' work and builders' trades,' by H.

C. Seddon (*Lippincott*); 'Avoidance of collisions at sea,' by W. Bainbridge (*Van Nostrand*); 'The luminiferous ether,' by Volsen Wood (*Van Nostrand*); 'Evolution of to-day,' by H. W. Conn (*Putnam*); Anthony and Brackett's 'Text-book of physics' (*Wiley*); 'Arctic explorations in the nineteenth century, from Ross to Greely' (*Allison*); 'At home in Fiji,' by Gordon Cumming, new edition (*Armstrong*); 'Persia, the land of the Imans,' by James Bassett (*Scribner*); 'The Kilimanjaro expedition, scientific exploration in eastern equatorial Africa,' by H. H. Johnstone (*Scribner*); 'What young people should know,' revised edition, by B. G. Wilder (*Estes & Lauriat*); 'A history of education,' by F. v. N. Painter (*Appleton*); 'A science of mind,' by J. H. Seelye (*Ginn & Co.*); 'The philosophy of wealth,' by J. B. Clark (*Ginn & Co.*); 'Our government,' by J. Macy (*Ginn & Co.*); 'General geology for high-schools and colleges,' by N. S. Shaler (*Heath*); 'Guides for science teaching,' four volumes (insects, fishes and frogs, birds, and mammals), by Alpheus Hyatt (*Heath*); 'Introduction to the study of philosophy,' by G. Stanley Hall (*Heath*); 'Modern petrography,' by George H. Williams (*Heath*); 'Industrial training,' by C. M. Woodward (*Heath*); 'A handbook of plant dissection,' by J. C. Arthur, C. R. Barnes, and J. M. Coulter (*Henry Holt*); 'The calculus,' by Simon Newcomb (*Henry Holt*); 'Elementary zoölogy,' by A. S. Packard (*Henry Holt*); 'Wood's medicinal plants,' American edition, by Charles Rice (*Wood*); 'The railways and the republic,' by James F. Hudson (*Harper*); 'Society, its peculiarities, practices, and problems,' by G. C. Lorimer (*Funk & Wagnalls*); 'Essays on finance, wages, and trade,' by R. Giffen (*Putnam*); 'Theism and evolution,' by J. S. Van Dyke (*Armstrong*); 'University education,' by G. S. Morris (*Andrews & Witherby*); 'Educational value of different studies,' by W. H. Payne (*Andrews & Witherby*); 'Mineral physiology and physiography,' by T. Sterry Hunt (*Cassino*); 'Methods of teaching and studying natural science,' edited by G. Stanley Hall (*Heath*).

— *The future* bears every mark that distinguishes publications of its class. The system on which its author, C. C. Blake of Richland, Kan., bases his "calculation of the coming weather through astronomical mathematics," is modestly entitled 'Cosmogony,' and in the April number of the paper its explanation goes so far as concluding that there is no such thing as matter, and motion only exists. By a vague series of inconsequences, it is shown that the earth is built up by gradual accretion of rays from the sun: "it is the gradual growth of the earth by absorption from the sun

that is the cause of the secular acceleration of the moon, which the best of astronomers have not been able to account for." The egotistical self-sacrifice that pervades the sheet is more pitiful than its teachings are dangerous.

— *The weather journal*, issued weekly at Cincinnati, by S. S. Bassler, the weather editor of the *Commercial gazette* of that city, is quite unlike most journals afflicted with meteorological titles in this country: it has nothing to say about cosmogony, or the influence of Saturn, but gains its high value from a set of twenty-one little maps in each issue, giving the isobars and something of the winds, temperature, and precipitation, three times for every day of the week of its publication, constructed according to the signal-service observations. Although too small to contain much detail, the maps show with sufficient clearness where the centres of high and low pressure are to be found, and the accompanying text is designed to explain the simpler principles of weather forecasting on this basis. We trust it may secure the large circulation that it well deserves, and that the maps may at the same time gain somewhat in clearness of execution in response to the requests of numerous subscribers.

— The first annual summary of observations made at the Blue Hill meteorological observatory, near Boston, was lately issued by Mr. Rotch. It contains a detailed statement of monthly and annual means, extremes, and ranges for 1885, placed side by side with similar records from the Boston signal office, ten miles north of, and five hundred feet lower than, the observatory. The mean annual values of several elements are as follows: pressure (reduced to 32°, sea-level and standard gravity), 29".962 and 29".964; temperature, 44°.4 and 47°.1; total wind movement 166, 110, and 102,829 miles; total precipitation, 39.00 and 46.85 inches. Mr. Rotch is contributing a series of articles on the mountain meteorological stations of Europe to the current numbers of the *American meteorological journal* that will prove of much value to students in this country, not only by informing them where high-level observations are made, but also by directing them to the publications in which they are recorded and discussed.

— The general detailed map of the United States, proposed and already begun by the U. S. geological survey, will be upon the scale of about four miles to the inch, with contour lines for every twenty-five to two hundred feet, according to the nature of the topography. It is proposed to issue this map in atlas sheets, each composed of

one degree of latitude by one of longitude, bounded by parallels and meridians.

— The first number of the *International record of charities and correction*, edited by Mr. F. H. Wines, and published by Putnam's Sons, has been received. The *Record* aims to make popular the literature of the subject to which it is devoted, to interest the public in such questions, and to show "what progress is making in the struggle for the relief of human suffering, and the elevation of the race." The general subject which will be discussed in its columns is 'social evils, their causes and remedy.' The editor names as the five great evils with which humanity has to contend, poverty, ignorance, disease, vice, crime.

— A local hurricane at Murraysville, Penn., on March 21, which caused considerable damage to property, has been ascribed to the heat produced by the conflagration at the large gas-well there.

— The French consulting committee of hygiene, we learn from *Nature*, recently advised the prohibition of the use of vaseline for butter in food-preparations. The effects of vaseline on the system, however, seemed to require fuller examination, and Dr. Dubois has made some experiments in regard to it. Two dogs were fed exclusively on soup in which the usual fat was entirely replaced with vaseline: one of them absorbed twenty-five grams of vaseline a day for ten days; the other fifteen grams (this would correspond, in the case of an average man, to one hundred grams and sixty grams respectively). With this diet the animals even slightly increased in weight. Their general state was good: there was no loss of appetite, nor vomiting, nor diarrhoea. In general, it may be said that the carburets of hydrogen forming vaseline, though they favor neither oxidation nor saponification like fats, are readily tolerated in the alimentary canal, at least in the case of dogs. Further experiments will show if a prolonged use of the substance is equally innocuous.

— The report of Mr. Hodgson to the Society of psychical research, denouncing the theosophists and Madame Blavatsky, has been replied to, says the London *Graphic*, by Mr. A. P. Sinnett, in a pamphlet called "The 'occult world phenomena' and the Society for psychical research" (*Redway*). It is not, it does not indeed pretend to be, a complete answer to the many points raised by Mr. Hodgson. There is no attempt, for example, to explain the existence of the damning Coulomb letters. But Mr. Sinnett scores some points against his adversary, and his pamphlet is to be followed by some memoirs of Madame Blavatsky,

which may contain further refutations. Madame Blavatsky herself appends to the pamphlet a brief and indignant denial of the grave charges which have been made against her.

—The success of the U. S. fish commission has caused complaints in England of the negligence of that government in matters pertaining to the fishing interests. The *Athenaeum* states that at the present moment there is not in the three kingdoms one scientific naturalist employed by the government to whom it has the right to apply for information on fishery questions. It is now said to be the intention of the government, however, to form a new fisheries board or commission.

—Caustic lime, ground fine, and consolidated by a pressure of forty tons into cartridges two inches and a half in diameter, is used in some collieries for getting coal, where gunpowder would be dangerous. After the holes are drilled in the face of the coal, an iron tube half an inch in diameter, with a small groove externally on the upper side, and several perforations, is inserted the whole length of the hole. The cartridges, which have a groove to fit the tube, are then inserted and lightly rammed, and the hole tamped. A small force-pump injects through the tube a quantity of water equal in bulk to the lime. The water escapes through the perforations and along the groove, saturating the whole, and driving out the air. The tube is then closed by a tap to prevent the escape of the steam, which, by its force, cracks the coal away from the roof, and then follows the expansion of the lime.

—A system of irrigation is on trial in Colorado, in which the water is conducted through pipes, laid a little below the surface several feet apart, and having small holes at intervals on the upper side to permit of the escape of the water, which percolates through and thoroughly moistens the soil. The advantages are claimed, that the surface of the soil is not chilled by flooding, and that the ground is not subsequently baked by the hot sun.

LETTERS TO THE EDITOR.

*** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

Phylloxera.

WHAT evidence have we on the following points in regard to phylloxera? —

First, was it well known as a pest in this country before its introduction abroad?

Second, when and how did it reach Europe?

Third, why is it more injurious in Europe than in its native habitat? and

Fourth, is there any reason to suppose that the pest will be mitigated by natural causes as time goes on?

A. M. D.

New Haven, March 29.

Certain questions relating to national endowment of research in this country, and their importance.

I have read with interest Dr. Shufeldt's arguments in *Science*, favoring endowment of research, and the recognition on the part of the government "of those persons in her employ who have from time to time demonstrated their fitness to perform certain work," but I would like to ask the talented author why he would restrict this recognition to those in the government's employ, or why, indeed, there should be any distinction made between such men and other able men in civil life. The physician who finds that he is far better qualified for some other pursuit than that of medicine gives up his profession, and accepts a position where his talents can be better applied. Is not the same resource left for army officers? Dr. Shufeldt will hardly claim a monopoly of talent in government employ; then why are not the many struggling students of science in civil life who have shown evidence of their fitness to perform certain work equally entitled to recognition? By all means, if such a scheme is feasible, endow or assist original research, but put all citizens absolutely on the same level. While one may sympathize with the talented officers who are compelled to undergo wearisome drudgery not akin to their tastes or inclination, it cannot be forgotten that there are many other equally talented scientific men who have to struggle without even the assurance of a comfortable salary. Endow research, but let the endowment be impartial.

W. S. N.

New Haven, Conn., March 27.

The anachronisms of pictures.

Supplementing your recent publications touching the above-named subject, an example interesting to geographical botanists may be recorded among the existing curiosities of the national capitol.

The senate committee in charge of the fine arts has secured a picture representing a well-known incident in the life of Columbus, that occurred in old Spain anterior to the discoverer's first trans-Atlantic voyage. This picture is hung at the head of the marble stairway near the seats reserved in the senate hall for the ambassadors of foreign powers. It proclaims to the world that the plant (the *Opuntia* [cactus of Linneus] *ficus indica*, or prickly pear) which has figured in Mexican patriotic symbolism from time out of mind, and which holds the most prominent place in the oldest of Aztec legends, — the plant which Mexico regenerate has chosen as an emblem sanctified by association and antiquity, and has placed upon her banner and her dollar, — this senatorial picture proclaims that this cactus, so dear to the patriotic Mexican heart, is not originally Mexican, but that it was a possession of the usurper, and in pre-Columbian times grew by the dusty wayside in old Spain. That it had not reached Europe at the date of the incident represented in the picture, there can be no doubt.

I would refer the student to Alfonse de Candolle's work, 'Origin of cultivated plants' (Appleton, 1885), p. 275. Speaking of the *Opuntia ficus indica*, the eminent botanist says, "It was one of the first plants which the Spaniards introduced into the old world, both into Europe and Asia. Its singular appearance was the more striking that no other species belonging